

## Rose Bud Forms



Pointed


Globular


Urn-Shaped


Rose Flower Forms


Single
High-Centered


Oid Garden


Globular


Dr. Tommy Cairns

Past President, American Rose Society
Curator, Rose Hills Memorial Park

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Beth Smiley, Managing Editor

# On the Cover 

'Jilly Jewel'

(BENmfig)
Miniature, hybridized by Frank Benardella, 2003
‘Figurine’ X ‘Kristin’
Beautiful blooms showcase a delicate pink blend and have classical, high-centered form. Produced in profusion throughout the growing season, they stay fresh-looking for a long time, both on the bush and as cut flowers. The plant is upright and bushy, with very attractive dark green foliage. It has a tendency to spread, so whether you are planting it in the ground or in a container, give it plenty of room. You really can't go wrong with this variety.

## Photographic Credits

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## ARS Mission

The mission of the American Rose Society is to increase the general interest in the cultivation of the Rose for all people and to improve its standard of excellence.

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## Introduction

While roses may have claimed the lofty title of "Queen of Flowers", they have received some criticism as a "Garden Prima Dona" being mis-characterized as delicate and temperamental. Not so! On the contrary, roses are one of the easiest plants to grow providing color throughout the year. Basic garden intelligence about how to grow roses is the key to successful rose growing.

This guide has been specifically designed as an introductory basic text for novice rose growers as well as prospective new members when they join the American Rose Society - the largest horticultural society in the US.

While the main purpose of this handy reference work is to introduce rose growers to the basics associated with growing roses, the Society publishes in its bimonthly magazine, American Rose, in-depth articles expanding on the basics illustrating some of the newer rose growing techniques and theories behind producing roses.

The various sections in this Guide are a collection of basic information designed to answer such questions as new members might be most likely to ask or just want additional information on a certain topic.

The main purpose of these sections is to provide the novice with instant answers and access to a number of commonly asked questions to allow members to understand and enjoy their roses more and more.

The art and science of growing roses is a hobby that will bring many hours of pleasure and enjoyment. The learning curve of the mastering the basic techniques is the first step to achieving that goal.

It is hoped that this guidebook will provide that initial stimulus to get more involved in growing roses that will be admired by your friends and neighbors alike.

Whittier, California
Dr. Tommy Cairns


Roses predate mankind on earth by about 10 million years. These early species were hardy and vigorous varieties that had only 4 to 8 petals, but they were the parents responsible for the serendipitous development of the rose as we have come to know it today. Almost 300 varieties, commonly referred to as Species, have been identified in this category and are responsible for the evolution of the Rose as we know it today.

Throughout the history of civilization, the rose has played important roles in almost every walk

'R. rugosa alba' of life. From poetry to music, from festivities to wars, the rose has been an integral part of society. In recognition of the rich history of the rose and its unique relationship with civilization, it was selected by the U.S. Congress in 1986 to be the National Floral Emblem of the United States. Roses are the most versatile of plants. Available in almost every shape, size and color imaginable!

## Hybrid Tea

By far the hybrid tea is the most popular class of rose easily recognized by large shapely blooms

'Marilyn Monroe' borne on long stems, which makes them perfect for cutting. In 1945 it was the rose 'Peace' which heralded the modern era of the hybrid tea. So dramatic was the overwhelming acceptance and praise accorded this variety that its place in history was instantaneous. Hybrid teas today have attained a zenith of perfection and are especially given to a loved one on Valentines Day.

'Gold Medal'

## Grandiflora

Grandifloras were first introduced in 1954 to accommodate a hybrid tea type rose that mostly formed clusters, namely 'Queen Elizabeth'. These roses display not only the characteristics of a hybrid tea but also the ability to bear clusters of blooms and grow to a commanding height of 6 to 8 feet or more. Excellent for creating a mass of color in the landscape where height is required, grandifloras are available in a myriad of colors.

## Floribunda

Second only in popularity to the hybrid tea, the floribunda is characterized by its profuse ability to bear flowers in large clusters with more than one bloom in flower at any one time. This class is unrivaled in producing massive colorful displays which are long lasting for garden display. In general, floribundas are content to grow to an average of 3 to 4 feet high with smaller flower size than the hybrid teas.

## Miniature Roses

This class of rose has increased in popularity due to its novelty and versatility. Miniatures can be used for edging beds, growing in containers and rockeries or even for taking indoors as temporary pot plants for decoration. The maximum height of the average miniature rose plant is about 15 inches and flower form and foliage are miniature versions of both hybrid teas and floribundas.

## Miniflora Roses

A relatively newcomer to the evolution of modern roses. Established in 1999 by ARS to recognize varieties whose bloom

'Brass Band'

'Luis Desamero'

'Memphis Music' size and foliage was too big to be called a miniature and too small to be classified as a floribunda. Grows to about 2-3 feet tall.

## Old Garden Roses

The definition of Old Garden Roses refers to those classes that existed prior to 1867 , the year of introduction of the first hybrid tea, 'La France'. There are several distinguishing features that set them apart from all others. Quite often they are nonrecurrent bloomers. After an initial spring crop of blooms, they produce no more flowers the rest of the year. The beauty of the Old Garden often

'Madame Hardy' lies in the heavy fragrance it can impart to the garden. Old Garden Roses are often referred to as Heritage Roses or old-fashioned roses.

## English Roses

These roses are a cross between

'Happy Child' Old Garden Roses and modern roses. They have the shape and fragrance of Old Garden Roses with the recurring bloom of today's roses. Popularized by rose breeder David Austin they are excellent choices for mass plantings. While classified as Shrubs, this particular group by Austin has gained widespread global popularity and following within the rose community as "English Roses".

## Shrubs

In the case of modern shrubs, there are four categories: Rugosas, Kordesii, Hybrid Moyesii, Hybrid Musk and any other modern shrub. Shrubs are easily characterized by their diverse habits, from upright bushes to sprawling giants to low ground covers. Some varieties can grow 15 to 20 feet or more in every direction. Noted for their hardiness, they are usually quite vigorous and produce large quantities of clusters of flowers.

'Rhapsody In Blue'

## Tree Roses

These roses are created when a rose is budded to a long, durable tree trunk. While not actually a rose classification, tree roses are very elegant and make an excellent focal point for landscaping. Tree roses typically are available in standard (36"), patio (24") and miniature (18") sizes.


## Climbers

These roses are characterized by long canes and are perfect for use around fences, trellises, posts and walls. Climbers are very hardy and easy to grow and will provide a spectacular mass of color.



Whatever type of rose you choose to purchase will probably be packaged as a dormant rose called "bare root" or will be potted in a container.


## BUD UNION

The point from which new canes (basal breaks) will emerge. Generally planted at soil level in temperature climates, the bud union may be vulnerable in cold climates if it is not planted below soil level and protected with a layer of mulch.


Most mail order companies offer bare root varieties with local garden centers and other retail stores offering both are root and potted plants. If you purchase bare root roses you need to look for canes that are green or reddish in color. They need to be planted as soon as possible after receiving them. Always follow the instructions packaged with the rose. Container roses should demonstrate healthy, active growth. You will often find roses with an AARS tag on them. This means that they have been tested in public gardens nationwide.

Roses will make any area of your home more beautiful. When developing your landscape plan there are several general guidelines to follow.

* Roses need lots of sun. They need at least five to six hours of direct sunlight each day. Morning sunlight is preferable to afternoon.
* Try not to choose an area close to large trees or shrubs where the rose has to compete for sunlight as well as water and other nutrients.
* Stay away from areas that are subject to heavy or continuous winds which can cause damage to your roses and dry them out.

While roses need frequent watering, especially in the hot months, wet roots can be extremely damaging to the plant. Adequate drainage is needed to insure that the roots receive the proper amount of water.

To check drainage, dig a hole approximately 24-36 inches deep at the site where the rose will be planted. Fill the hole with water. The hole should empty in a few hours. If this does not occur then a raised bed may need to be installed or dig a little deeper and create a drainage level of stones or crushed brick.

## When to Plant

Spring is generally considered the ideal time to plant roses. Depending on your climate zone, planting can usually occur after the last possibility of frost has passed. Container grown plants may be transplanted at any time, but selecting a cool morning is wise. Other times of the year may be appropriate depending on your area.

If you have a question about when to plant your rose bush call your local county extension service or even better call the American Rose Society and they will refer you to a local "Consulting Rosarian" who can advise on a volunteer basis.


Once you have chosen your new rose bush and its location, the next step is preparing for planting. Despite its importance to insure the proper growth and healthiness of the rose bush, little attention is paid soil preparation. All too often the $\$ 10$ rosebush finds a home in the 50 cent hole! A good soil mix should include one third each native soil, peat moss, and potting soil.

Planting your rose is a simple and easy process. Dig a hole 24-36 inches deep and 20-30 inches wide. Trim off any broken roots or canes on the bush.

1. Build a pyramid mound of soil the middle of the hole to support the roots so that the bud union will be just at ground level. If you live in colder areas where winter temperatures fall below freezing, position the bud union 1 to 2 inches below the ground.
2. After placing the rose bush, fill the hole two thirds full and pat down lightly to remove any air pockets. Fill the hole with water and let soak in. Check plant to ensure that no shifting has occurred then fill the hole completely with the rest of the soil mixture and pat firmly.
3. Create a 6 inch mulch mound over the plant. When the buds start sprouting move the mound.



While the rose may rule the horticultural empire as Queen of Flowers, there are many enemies in the insect and fungi worlds opposed to her lofty title. There are, however, also a number of friendly and beneficial insects and natural predators like the ladybug beetle, which assist and help control the continuing fight against a long list of bugs and diseases. This overview provides a list of these major insects that can impact roses as well as advice on how to successfully fight against these pests. Controlling such pests is not a difficult task when you are informed about their habits and actions.

## Rose Aphids

The number one insect enemy in the rose garden is undoubtedly the aphid (often referred to as greenfly). Rose aphids are small, green, softbodied insects that can be found in large colonies, particularly on the first lush spring growth. They tend to attack the soft epidermis tissue just below the developing bud. Weekly spraying with water can wash off these bugs, but it may need to be repeated several times to ensure full control.

## Spittle Bug

This small, greenish-yellow insect always hides itself inside a circular mass of white foam on the surface of new stems usually during the development of the first bloom cycle in early spring. The damage they cause by feeding on the stems often results in distortion or wilting. A good strong jet of water will remove the foam and the insect.


## Rose Scale

These insects hide under gray scales or shells normally old canes or stems. They feed by sucking the sap and nee weaken the plant. They can often be removed by your fingernail or spraying with a multipurpose insecticide. For severe outbreaks it is best to cut off the infected portion of the cane or perhaps chose an appropriate insecticide.

## Cane Borer

These insects eat the central core of the cane until they develop to adulthood. The tell-tale sign of a cane borer is the neatly punctured hole visible on the top of the cane. To remove the pest, cut several inches down the cane until there is no longer signs of the insect.


## Beetles

There are a large number of beetles such as the Fuller Rose Beetle and Japanese Beetle which will indiscriminately eat parts of the foliage and sometimes the flower parts. While beetles can be picked off the bush by hand, they are subterranean dwellers and can be disposed of more easily with a soil drench of an appropriate insecticide.

## Spider Mites

Unable to be detected by the human eye because of extremely small size, the spider mite often establishes huge colonies underneath the leaves before detection. All too often the foliage begins to turn yellow and drop off before the gardener realizes that the problem is spider mites. To help prevent spider mites examine underneath the foliage on a weekly basis. The underside of the foliage will give the appearance of salt and pepper particles if colonies are beginning to establish themselves.


Many rose growers may prefer to chose spraying with an appropriate miticide, if detected early enough. If you prefer, a fine misting with water to the undersides of the foliage will wash off the mites to ground level. Mites are unable to fly and they will die on the ground.


## Western Flower Thrips

Adult thrips are very small and usually have dark bodies with four wings fringed with hairs. Their small size makes them difficult to detect in the garden. Not until their damage to the bloom appears do you realize that a colony has established itself in the garden.

Nymphs and adult thrips inflict damage by drinking the plant sap. Tiny holes in several rows appear on the outer petals as the bloom attempts to open. In some cases, the bloom never reaches maturity since it has been robbed of the necessary nutrients.

For severe infestations, spraying if adopted should be
 directed mainly at the young tender foliage and developing buds, as well as the soil level around the bush. In this way, adults and developing thrips in the soil are destroyed. Spraying should be repeated five days apart to kill off the next generation of thrips in both soil and upper foliage areas.

## Leaf Cutter Bee

Regarded as a beneficial insect, the leaf cutter bee carves out semicircular portions of foliage as nest tunnels and food for its developing young. Live with the damage as this insect is a natural predator of other pests in the garden.


## Ladybug Beetles

By far the most common ladybug in North America, particularly in California, is the Convergent Lady Beetle (Hippodamia convergens) named because of its convergent light markings on its shell orange with black spots or stripes. Each larvae can devour about 25 aphids a day and each adult about 50 aphids a day. The problem in harnessing this natural and powerful predator lies in understanding its life style. Aphids and water must be present in the right amounts.


If the temperature falls below $65^{\circ} \mathrm{F}$, the ladybugs won't fly, eat, or reproduce. When the temperature finally does rise above $65^{\circ} \mathrm{F}$, they usually fly off to find colonies of aphids. The use of pesticides must be abolished to permit the adult ladybugs to live, eat and reproduce on the rose plant.

## Powdery Mildew

This fungus feeds on the living system of the plant by imbedding its own living structure into the cellular layer just below the epidermis. It then proceeds to feed on the sap, extending its structure on the surface, and finally killing the plant's cells by forming a spore sac for further growth. For these reasons, organic spraying as well as systemic fungicides are the most effective in control of mildew.
Many rose growers, particularly rose exhibitors, chose a spraying program as the best guarantee of full control. However, application on a weekly basis is an absolute must since the life-cycle of the fungus is very rapid.

Unfortunately, by the time the white threadlike structures are visible to
the naked eye, the fungus has already invaded the cells of the plant and are feeding to reproduce at a fantastic rate. Therefore, in many cases, the observance of powdery mildew is sometimes too late to prevent wide-spread damage and foliage removal is the only course of action.

Why some rose plants are almost immune to powdery mildew is now comprehensible. Quite often the wax coating of some leaves provide an impenetrable barrier to the fungus in their attempt to send down feeding tubes to drink the plant nutrients. For disease resistant varieties see page 19 .

## Downy Mildew

Perhaps the most serious fungus to invade the rose garden is downy mildew, a big brother to powdery mildew. It can defoliate a rose bush and continue to survive on the canes themselves. However, it can be treated with an appropriate fungicide.


There is only one chemical that seems to kill this fungus effectively during the growing season, the newly registered Ridomil Copper 70 W . It is rare to observe this fungus in sub-tropical climates in the Southern States, but it can sometimes invade such climates and cause a great deal of harm. Alternate remedies to use are Kocide 404S, or Manzate.

## Blackspot

This fungus can cause black spots on the leaves of the rose bush and can quickly affect all of the bush if left unchecked. It thrives in warm, wet conditions. Choosing a disease resistant variety is an obvious way to avoid blackspot altogether.


## Rust

Another fungus that can invade the garden, especially when the moisture levels are high, is rust. This particular fungus grows on the undersides of the foliage in little neat red clusters. It is easily destroyed by an application of an appropriate fungicide.


## Botrytis

If the weather is constantly cool and damp, the most severe infections are marked when the buds of infected varieties fail to open. In less severe cases, the flowers are often characterized by rotting of the uppermost tip of the petals before the bloom opens up. Small reddish flecks often appear on the outer petals and can cause blister like lesions.


While there is no doubt that good hygiene and preventative measures can ensure a check on potential diseases, it is the ultimate choice of durable varieties that works best. Certain varieties may display a built-in genetic resistance - perhaps best characterized as an increased natural immunity to certain common diseases. For instance, varieties with shiny foliage often have a wax coating to protect them from fungal infections such as powdery mildew and blackspot. Prevailing climatic conditions also play an important role. Cool climates with high humidity may promote fungal diseases, while hot dry climates offer some protection. And above all else roses requires 6-10 hours of sunshine to excel.

Therefore, choosing a rose variety based merely on an appealing color photograph can be a recipe for disappointment. The selections below are a guide to varieties tested for their observed disease resistance in gardens throughout the U.S. You can also ask advice from your local rose society and its ARS Consulting Rosarian cadre who are always willing to assist.

## Hybrid Teas

'Gemini', pink blend, 25-30 petals, 1999
'St. Patrick', medium yellow, 30-35 petals, 1996
'Marilyn Monroe', apricot blend, 30-35 petals, 2001
'New Zealand', light pink, 34 petals, 1989
Floribundas \& Polyanthas
'Iceberg', white, 20-25 petals, 1958
'Moondance', white, full, 2007
'Easy Does It', orange pink, full, 2008
'The Fairy', light pink, double, 1932
Miniatures \& Minifloras
'Gourmet Popcorn', white, semi-double, 1988
'Behold', medium yellow, double, 1996
'Memphis Music', red blend, double, 2006 Old Garden Roses
'Charles de Mills', dark red, 38 petals, before 1790
'Konigin von Danemark', medium pink, full, 1816
'Louise Odier', deep pink, double, 1851

## Shrubs

'Knock Out', red blend, single, 1999
'Pink Home Run', deep pink, single, 2009
'Carefree Sunshine', light yellow, single, 2001
'Belinda', medium pink, semi-double, 1936

By choice, insects and powdery mildew can be moderated by washing - spray, your bushes with plain water or mild soap solution, rinse after on a sunny morning. Remember to wash underside of leaves to control spider mites as well. Timing is important. Too late in the day encourages diseases. Too hot around noon, risks sun scald. Often the larger insects can be hand-pick off. The following list of remedies with some success at control are:

Baking Soda/Horticultural Oil like "Volcano Spray" against powdery mildew. A tablespoon of each (use a light oil, like Ultrafine) per gallon of water, used every 2 weeks.

Pyrethrins, best sprayed in the evening, to avoid bees and predatory insects. Controls chewing \& sucking insects, often combined with oils (canola) or soap (like soap).

Light Oils, used both as Dormant Sprays, \& later on in the season to control mites and insects.

Lime Sulfur, the main organic fungicide, also a vital rose nutrient. Apply carefully and avoid application in heat.

## Companion Plantings

Alliums, members of the onion/garlic family, have shown some anecdotal anti-fungal effect. Plants with small flowers such as achilleas, verbenas, daisies, lavenders, Rosemary, scabiosas, santolinas and many other rose companions are known to attract beneficial insects

## Horsetail Tea (equisetum)

It has been anecdotally used against rust and mildew, possibly due to its high silica content. Brew one cup of these rushes in a gallon of water, let sit at least four hours (overnight was recommended), and then strain or remove. Mix at a rate of one cup of "equisetum tea" to one gallon of water, and spray on foliage to coat. Best as a preventative.

Many rosarians wish to adopt more earth-friendly gardening, and even the most seasoned gardener (organic or otherwise) may benefit from a new outlook.


There are a number of simple steps that can greatly improve the enjoyment you will derive from the rose garden during the summer months. A reasonable amount of effort expended on a weekly basis will help ensure success of the recommended program outlined below.

## Importance of Correct Watering

As the temperatures climb, a rose's need for water is far greater than in the cooler months of early spring. Deep watering as often as three times per week is recommended during the hot summer months.An ample supply of water must be delivered to each bush to allow the water to penetrate at least down to the base of the root system, usually two to three feet deep. Water moves through the soil like drawing a window shade down a window. The key is to provide sufficient water for your soil type to allow this required deep penetration.

If insufficient water is supplied to the plant, only the topmost feeder roots receive water and the lower root system may be denied an ample supply. The plants will tend to show signs of wilting or display a limp appearance if too little water is supplied. On the other hand, too much watering will flood the soil and the foliage will turn yellow and die.

Mastering the right amount of water to be delivered to each plant is not that difficult. If temperatures are above $80^{\circ} \mathrm{F}$ during the day for more than several days, your watering schedule should be three times a week. If daytime temperatures soar above $90^{\circ} \mathrm{F}$, watering every other day will be mandatory.

## Fertilization is a Must

Plant food can be regarded as any substance that contains in readily available form significant amounts of the nutrients required for the proper growth and development of the rose plant. Plants are generally composed of various elements. The three major elements, namely, carbon, hydrogen and oxygen form the actual plant structure are readily obtainable from air and water. All the remaining nutrients must be derived via the soil. Three levels of plant nutrients are easily distinguishable:

1. The primary nutrients - Nitrogen, Phosphorus and Potassium.
2. The secondary nutrients - Calcium, Magnesium, and Sulfur. Often called the macro-nutrients because they are required by growing plants in relatively large amounts.
3. The micro nutrients - Boron, Chlorine, Cobalt, Copper, Iron, Manganese, Molybdenum, and Zinc.

The Association of American Plant Food Control Officials (AAPFCO) has for its object the promotion of uniform and effective legislation, definitions, rulings, and enforcement of laws relating to the control of sale and distribution of mixed fertilizers and fertilizer materials. Three such rules are of utmost importance to rose horticulture.

First, a guaranteed analysis statement should appear with the mixed fertilizers indicating the percentage elemental composition and their origins. With the exceptions of phosphoric oxide $\left(\mathrm{P}_{2} \mathrm{O}_{5}\right)$ and potassium oxide $\left(\mathrm{K}_{2} \mathrm{O}\right)$, all nutrients are reported as the element. The acronym $\mathrm{N}-\mathrm{P}-\mathrm{K}$ is often used to denote these percentage analysis figures, i.e.

$$
\begin{gathered}
\mathbf{N}=\text { Nitrogen; } \\
\mathbf{P}=\text { Phosphorus, and } \\
\mathbf{K}=\text { Potassium }(\text { derived from Latin Kalium })] .
\end{gathered}
$$

Second, such analyses are also a true indication of the amounts of those elements available to the plant. Available plant food is intended to mean that which is in a form capable of being assimilated by the growing plants or of being converted into such a form in the soil during the immediate growing season.

While all material that is immediately soluble in water can be termed available, some animal and vegetable materials may decompose with time in damp soils to release all of their nitrogen, say, to the growing plants at times later than the application period. The degree of availability, however, is dependent upon the pH of the soil.

Third, the fertilizer formula shall express the quantity and grade of the crude stock materials used in making a fertilizer mixture. The consumer is protected by law in that a label reporting all of the above information should be attached to the fertilizer mixture for ease of viewing before purchase.

To be knowledgeable in the various constituents that make up commercially available fertilizers for roses is one of the necessary keys to horticultural excellence and economy.

## Grooming the Roses

After the first and second bloom cycle, pruning becomes an important job in the rose garden. When spent blooms are removed, cut to the nearest five leaflet where the stem is about pencil thickness. The more foliage left on the bush, the healthier the bush will be. After cutting, the five leaflet is liable to die due to the nutrient surge required by the new growth. The foliage set usually turns yellow and falls off. This process is a natural one and cannot be avoided.


## Spraying Program

Rose plants are at their highest risk to damage from pests and fungal diseases during the summer months. By far the best approach to guaranteed health is a regular spraying program. For insects and powdery mildew, weekly spraying should provide protection on a preventive basis.

## Weeding and Cleaning the Rose Bed

The rose bed as well as the roses themselves need periodic care. In particular, clean up the dead foliage and other leaf litter that might accumulate on the beds. This debris is a home for pests and fungal spores that will plague the rose bush later in the summer. Cleanliness is the best policy. Remove weeds at the first sign of growth as once they become established they are more difficult to move.

## Preparing Roses for Winter

After enjoying your roses throughout the growing season, a few easy steps will prepare them for the rigors of winter. Leave the last blooms of fall on the plant. Clean old leaves and debris around the rose bed to prevent diseases. Roses always need water to keep them healthy if there is no precipitation for more than a few weeks, watering is needed.

If your winters are severe (under 10F) more special consideration is needed. Prune the roses to about 24 inches, which protects them from wind and ice damage. Place a soil mound around the base of the plant proximately six to eight inches high. Remove the soil mound in the spring after the last frost has past.

## Anatomy of a Rose Bush

## STRONG CANES:

Canes emerging vigorously from the bud union and growing in an outward direction are the framework upon which future growth will begin



The fine art of rose pruning has always been a major concern to rose growers, new and experienced. Strong emphasis has often been placed on proper pruning techniques by justifying that it provides a golden opportunity for the rose grower to correct, adjust and modify the size and shape of the rose plants and to keep modern roses blooming all summer.

In colder climates the removal of dead branches may well be the prime activity of pruning, but in warmer climates the main emphasis is to shape the bush for the spring bloom. The act of pruning can encourage growth from the bud union usually regarded as strong evidence of good health. The removal of old wood and damaged or diseased parts can allow a recuperative process to take place for increased growth.

This removal of branches and sometimes old canes serves as a form of dormancy in warm climates such as Southern California and portions of Florida since it cannot be achieved naturally. Because it is a healthy habit to allow rose bushes a period of non-production, the act of pruning permits a rejuvenation process.

## Best Time to Prune

An appropriate time to begin the pruning process is usually after the last snow or frost has gone. This timing is based on the fact that when pruned, roses will generally take about 75 to 80 days to bloom. Pruning allows the removal of branches back to strong primary canes to induce stronger stems and bigger blooms.

## Equipment Needed

Above all else, investment in a pair of quality pruning shears is mandatory. After all the expense of buying the rose bush and the planting process, the cost of a good pair of pruning shears is a wise investment. For removal of large woody canes at the bud union a pruning saw is suggested. Attempts to use pruning shears for these jobs usually results in damage to the bud union. For cutting large diameter canes a pair of lopping shears with 18 " handles can facilitate the cutting without placing too much pressure on your hands. Invest
in a small wire brush (about 2 " wide by 3 " deep) to help remove loose bark from the bud union. Finally, save on profanities while pruning by buying a good strong pair of thick leather gloves that are puncture proof.

## The Angle to Cut

By far the most important technique to master in pruning roses is the correct angle and direction of the cut. The final pruning cut should be made at approximately 45 degree angle, about $1 / 4$ " above a leaf axil where there a bud eye. If the bush has foliage present, the cut location is easy to find. However, cuts are often made further down canes where there is no foliage to guide you the appropriate cut. Under these circumstances look for the eye on such canes by locating where foliage was once connected. The eye is normally visible as a slight swelling above the surface of the cane.


## General Tips On Pruning

1. Always prune to good healthy tissue easily recognized by the green bark on the outside of the cane and white core revealed after the cut is made.
2. To accelerate the sealing process after the cut is made, a drop of Elmer's Glue can ensure a quicker recovery as well as provide an instant protective barrier against cane borers.
3. Prune to ensure the center of the bush is open for maximum air circulation so that canes grow from the bud union like spokes of a wheel with no crossovers or interferences.
4. Plan to remove all growth on main canes that is not capable of sustaining a reasonable thickness of stem. For hybrid teas, a bloom needs a stem about pencil thickness or greater for support.
5. If suckers are present (growth from the root structure below the bud union) remove them from as close to the main root cane below the bud union as possible. If allowed to grow, the sucker will eventually take over the whole bush.
6. Remove old canes that appear woody by sawing them off as close to the bud union as possible. Make this cut clean and smooth. Should any stubs from bad cuts made last year remain, saw them off cleanly. Finally, apply a wire brush to the outside of the bud union to loosen and remove any dead tissue to promote basal activity.
7. After pruning of the rose bushes, the rose beds should be thoroughly cleaned of dead leaves and other debris. This is to reduce the potential for various insects and fungi by not allowing them a hiding place. In the same way, all pruned material from the bushes should be bagged and removed as trash.
8. To ensure the destruction of all insects and fungi, apply an organic based dormant spray such as Lime \& Sulfur immediately after pruning. Do not wait one or two weeks to perform this spraying since in that space of time some eyes may have developed and such a spraying could damage them.

## Hybrid Teas \& Grandifloras

Their growth habit is such that by winter they are generally 6-7 feet tall and looking very lanky. In sub-tropical climates like Florida and Southern California the height of the canes remaining after pruning on an established bush can be as tall as 20-30 inches in some instances. In the northern winter climate zones much smaller canes are normal due to kill-back. In general, about 4 to 5 major canes can remain. Removal of older canes is a trigger mechanism to the rose bush to attempt to promote basal breaks. This regenerative process is fundamental to the long term health of the bush

## Floribundas

Since floribundas are mainly for garden display, many older canes are allowed to remain to permit a dense development of inflorescence. Therefore, the number of canes remaining after pruning is much greater than that recommended for hybrid teas. Two main reasons drive this strategy. First, there are considerably fewer potential dormant eyes for first growth because of the length of the canes. Second, the flowering habit emphasis of floribundas is to produce large numbers of flower clusters but not always necessarily on long stems. Therefore, leaving a greater number is advised.

## Miniature \& Miniflora Roses

First of all, the majority of miniature roses are grown on their own roots, i.e. no bud union and therefore no suckers. Because precise pruning when applied to miniature roses is very labor intensive, the majority of rosarians prefer to take garden clippers and trim off the tops at no greater than 30 cm above the soil level (height varies according to growth habit of the variety and climate zone).

## Old Garden Roses

When attempting to prune old garden roses, avoid treating them as modern hybrid teas and floribundas. For maximum bloom production, pruning should be more of a light grooming than a severe pruning. Prune only last year's growth. After a few years, however, this practice makes for a very lanky bush. Therefore, each year prune back some of the oldest canes to promote basal and post-basal breaks.

## Climbers and Shrubs

Climbers will generally not flower profusely unless the canes are trained into the horizontal position. Cut the ends of these long established canes to about the place where the canes are slightly larger than pencil thickness. Then, rather than remove each side stem that has flowered, cut them to the lowest possible five leaflet, i.e. about $2-4 \mathrm{~cm}$ from the main cane. This process will result in flowering along its complete length.

## Award Winning <br>  <br> Roses



## AMERICAN ROSE SOCIETY

## Selected Top Rated Roses

(As determined by the ARS membership in the Roses in Review Evaluation Program)

## Hybrid Teas

'Touch of Class' orange pink, 25-35 petals, 1985
'Dainty Bess' Climber, light pink, single, 1935
'Elina' light yellow, 30-35 petals, 1984
'Olympiad' medium red, 30-35 petals, 1983
'Dainty Bess' light pink, single, 1925
'Kardinal' medium red, 30-35 petals, 1986
'Pristine' white, $28-35$ petals, 1977
'Silver Jubilee' pink blend, 30-35 petals, 1977
'Captain Thomas' Climber, light yellow, single, 1935
'Double Delight' red blend, 30-35 petals, 1976
'Gemini' pink blend, 25-30 petals, 1999
'Louise Estes' pink blend, 35 petals, 1991
'Mister Lincoln' dark red, 35 petals, 1965
'Moonstone' white, full, 1998
'Veterans' Honor' dark red, 25-30 petals, 1999
'Elizabeth Taylor' deep pink, 30-35 petals, 1986
'Folklore' orange blend, 44 petals, 1976

## Grandifloras

'Gold Medal' medium yellow, 30-35 petals, 1981
'Fame!' deep pink, 30-35 petals, 1998

## Floribundas

'Hannah Gordon' pink blend, 20-25 petals, 1984
'Lavaglut' dark red, 24 petals, 1979
'Sexy Rexy' medium pink, very full, 1985
'Escapade' mauve, 12 petals, 1967
'Iceberg' white, 20-25 petals, 1959
'Playboy' red blend, single, 1976
'Bridal White' white, double, 1972
'Europeana' dark red, 25-30 petals, 1964
'Iceberg' Climber, white, 1968
'Playgirl' medium pink, single, 1986
'Sunsprite' deep yellow, 25-30 petals, 1973

## Polyanthas

'The Fairy' light pink, double, 1932
'La Marne' pink blend, single, 1915
'White Pet' white, double, 1879
'Perle d'Or' yellow blend, very full, 18755
'Mlle Cecile Brunner' light pink, double, 1880
'Margo Koster' orange blend, 1931
'China Doll' medium pink, 1946

## Classic Shrubs

'Dortmund' HKor, medium red, single, 1955
'William Baffin' HKor, deep pink, 20 petals, 1983
'Henry Hudson' HRg, white, 25 petals, 1977
'John Cabot' HKor, medium red, 40 petals, 1978
'Magnifica' HRg, dark red, full, 1907
'Nevada' HMoy, white, single, 1927
'Francis E. Lester' HMsk, white, single, 1946
'Penelope' HMsk, light pink, semi-double, 1924
'Roseraie de l'Hay' HRg, dark red, double, 1901
'Ballerina' HMsk, medium pink, single, 1937
'Belinda' HMsk, medium pink, semi-double, 1936
'Cornelia' HMsk, pink blend, double, 1925
'Jens Munk' HRg, medium pink, 25 petals, 1977

## Modern Shrubs

'Sally Holmes' white, single, 1976
'Robusta' medium red, single, 1979
'Gartendirektor Otto Linne' deep pink, double, 1934
'Golden Wings' light yellow, single, 1953
'Carefree Beauty' medium pink, 15-20 petals, 1979

## Large Flowered Climbers

'Royal Sunset' apricot blend, 20 petals, 1960
'Clair Matin' medium pink, 15 petals, 1962
'Sombreuil' white, very full, about 1880
'Newport Fairy' pink blend, single, 1908
'Altissimo' medium red, 7 petals, 1966
'City of York' white, 15 petals, 1945
'Dublin Bay' medium red, 25 petals, 1976
'New Dawn' light pink, 35-40 petals, 1930
'Compassion' orange pink, 36 petals, 1973
'Pierre de Ronsard' pink blend, 40-55 petals, 1985
'Alberic Barbier' white, double, 1900
'America' orange pink, 43 petals, 1975
'Don Juan' dark red, 30-35 petals, 1958
'Fourth of July' red blend, 10-16 petals, 'Parade' deep pink, 33 petals, 1953
'Pink Perpetue' medium pink, 32 petals, 1965

## Miniatures \& Minifloras

'Jeanne Lajoie' Climber, medium pink, 40 petals, 1976
'Whiteout' white, 20 petals, 1989
'Jean Kenneally' apricot blend, 22 petals, 1984
'Irresistible' white, 43 petals, 1990.
'Minnie Pearl' pink blend, 25 petals, 1983
'Pierrine' orange pink, 40 petals, 1988
'Giggles' medium pink, 18 petals, 1987
'Gourmet Popcorn' white, semi-double, 1987
'Rainbow's End' yellow blend, 30-35 petals, 1984
'Peggy T' medium red, 5 petals, 1988
'Magic Carrousel' red blend, double, 1973
'My Sunshine' medium yellow, single, 1986
'Rise ' $\mathbf{n}$ ' Shine' medium yellow, 35 petals, 1990
'Ruby Pendant' mauve, 25-30 petals, 1980
'Sweet Chariot' mauve, 55-60 petals, 1985
'Candy Cane' Climber, pink blend, 13 petals, 1959

## Old Garden Roses

'Reve d'Or' Noisette, medium yellow, double, 1869
'Old Red Moss' Moss, medium red, very double
'Alba Semi-plena' Alba, white, 8-12 petals, before 1754
'Great Maiden's Blush' Alba, white, double, before 1754
'Mme Alfred Carriere' Noisette, white, double, 18799
'Mme Plantier' Alba, white, very double, 1835
'Mrs B.R. Cant' Tea, medium pink, double, 1901
'Mutabilis' China, yellow blend, single, before 1894
'Complicata' Hybrid Gallica, pink blend, single
'Louis Philippe' China, red blend, double, 1834
'Madame Hardy' Damask, white, very full, 1832
'Marchesa Boccella' Hybrid Perpetual, pink, double, 1842
'Cramoisi Superieur' China, medium red, double, 183
'Ispahan' Damask, medium pink, double, before 1832
'Lamarque' Noisette, white, double, 1830
'Rose de Rescht' Portland, deep pink, very double, 1880
'Souv de la Malmaison' Bourbon, light pink, 1843
'Old Blush' China, medium pink, semi-double, 1750
'Pink Pet' China, medium pink, double, 1928
'Alain Blanchard' Hybrid Gallica, mauve, 1839
'Alba Maxima' Alba, white, double, before 1867

# AMERICAN ROSE SOCIETY SPECIAL AWARDS JAMES ALEXANDER GAMBLE FRAGRANCE MEDAL WINNERS 

Awarded to outstanding, very fragrant roses by the ARS

1961 'Crimson Glory' Hybrid Tea, dark red, 30-35 petals, 1935
'Tiffany' Hybrid Tea, pink blend, 25-30 petals, 1954
'Chrysler Imperial' Hybrid Tea, red, 45-50 petals, 1952
'Sutter's Gold' Hybrid Tea, orange blend, 33 petals, 1950
'Granada' Hybrid Tea, red blend, 18-25 petals, 1963
'Fragrant Cloud' Hybrid Tea, orange red, 28-35 petals, 1967
'Papa Meilland' Hybrid Tea, dark red, 35 petals, 1963
'Sunsprite' Floribunda, deep yellow, 25-30 petals, 1977
'Double Delight' Hybrid Tea, red blend, 30-35 petals, 1977
'Fragrant Hour' Hybrid Tea, orange pink, 35 petals, 1973
'Angel Face' Floribunda, mauve, double, 25-30 petals, 1968
'Secret' Hybrid Tea, pink blend, 30-40 petals, 1992
'Mister Lincoln' Hybrid Tea, dark red, 30-35 petals, 1964
'Sheila's Perfume' Floribunda, yellow blend, 20-25 petals, 1982
'Fragrant Plum' Grandiflora, mauve, 20-25 petals, 1990
'Sweet Chariot' Miniature, mauve, 55-60 petals, 1985

## AMERICAN ROSE SOCIETY MEMBERS' CHOICE

American Rose Society "Members' Choice Award" honors the rose introduced within the past five years with the highest garden rating score in Roses in Review.
2004 'Knock Out' Shrub, red blend, single, 1999
2005 'Gemini' Hybrid Tea, pink blend, 30 petals, 1999
2006 'Bees Knees' Miniature, yellow blend, full, 1998
2007 'Hot Cocoa' Floribunda, russet, full, 2002
2009 'Julia Child' Floribunda, medium yellow, full, 2005
2010 'Home Run' Shrub, medium red, single, 2004
2011 'Cinco de Mayo' Floribunda, russet, double, 2007

## AMERICAN ROSE SOCIETY MINIATURE \& MINIFLORA HALL OF FAME INDUCTEES

(Been in commerce more than 20 years)
1999 'Starina' orange red, 23-28 petals, Meilland 1964
'Beauty Secret' medium red, double, Moore 1972
'Rise 'n' Shine' medium yellow, 35 petals, Moore 1977
'Party Girl' yellow blend, 23 petals, Saville 1979
2000
'Cinderella' white, 55 petals, deVink 1953
'Mary Marshall' orange blend, double, Moore, 1970
2001 'Green Ice' white, double, Moore 1971
'Jeanne Lajoie' medium pink, 40 petals, Sima 1976
2002 'Cupcake' medium pink, 60 petals, Spies 1981
2003 'Snow Bride' white, 20 petals, B. Jolly 1982
'Little Jackie' orange blend, 20 petals, Saville 1982
'Minnie Pearl' pink blend, 25 petals, Saville 1982
'Red Cascade' dark red, 40 petals, Moore 1976
'Jean Kenneally' apricot blend, 22 petals, Bennett 1986
'Rainbow's End' yellow blend, 30-35 petals, Saville 1986
'Giggles' medium pink, 18 petals, King 1987
'Black Jade' dark red, 35 petals, Benardella 1985
'Pierrine' orange pink, 40 petals, M. Williams 1988
'Irresistible' white, 43 petals, Bennett 1989
'Fairhope' light yellow, 16-28 petals, Taylor 1989
'Gourmet Popcorn' white, semi-double, Desamero 1986
'Luis Desamero' light yellow, 28 petals, Bennett 1988
'Chelsea Belle' medium red, 28-30 petals, Taylor 1991
'Grace Seward' white, single, Bennett 1991
'Fancy Pants' red blend, 40 petals, King 1986

## WORLD FEDERATION OF ROSE SOCIETIES

(As determined at the triennial convention by the 40 National Rose Societies of the world )

## ROSE HALL OF FAME WINNERS

'Peace' Hybrid Tea, yellow blend, 43 petals, 1945
'Queen Elizabeth' Grandiflora, pink, 38 petals, 1954
'Fragrant Cloud' Hybrid Tea, orange red, 28-35 petals, 1967
'Iceberg' Floribunda, white, double, 1958
'Double Delight' Hybrid Tea, red blend, 30-35 petals, 1976
'Papa Meilland' Hybrid Tea, dark red, 35 petals, 1963
'Pascali' Hybrid Tea, white, 30 petals, 1963
'Just Joey' Hybrid Tea, orange blend, 30 petals, 1972
'New Dawn' Large Flowered Climber, light pink, 1930
'Ingrid Bergman' Hybrid Tea, red, 35-40 petals, 1984
'Bonica' Shrub, medium pink, double, 1985
'Elina' Hybrid Tea, light yellow, 30-35 petals, 1984
'Pierre de Ronsard' Climber, pink blend, 40-55 petals, 1987
'Graham Thomas' Shrub, deep yellow, 35 petals, 1983

## OLD ROSE HALL OF FAME

'Gloire de Dijon' Climbing Tea, orange pink, double, 1853
'Mlle Cecile Brunner' Polyantha, light pink, double, 1880
'Old Blush' China, medium pink, 1751
'Souv. de la Malmaison' Bourbon, light pink, double, 1843
'Gruss an Teplitz' Hybrid China, medium red, 33 petals, 1894
'Mme Alfred Carriere' Noisette, white, double, 1879
'Madame Hardy' Damask, white, very full, 1832
'Rosa Mundi' Species, pink blend, semi-double, before 1851

## ROSE HILLS INTERNATIONAL ROSE TRIALS

## GOLDEN ROSE OF ROSE HILLS

2002 'Gizmo' orange blend, single, Miniature, Carruth 1998
2003 'City of San Francisco' medium red, Floribunda, Carruth 2000
2004 'Tuscan Sun' apricot blend, 25 petals, Hybrid Tea, Zary 2005
'Preference' medium red, 25 petals, Floribunda, Meilland 2004
2006 'Cherry Parfait' red blend, Hybrid Tea, Mouchotte 2001
2007
'Chihuly' red blend, double, Floribunda, Carruth 2003
'Happy Chappy' yellow blend, single, Shrub, Ilink 2006
2008
2009
2010
'Teeny Bopper' red blend, double, Bedard 2007
'Always \& Forever' medium red, 35 petals, Zary 2010

'Always \& Forever' by Dr. Keith Zary Golden Rose of Rose Hills 2010

# GOLD MEDALS - HYBRID TEAS 

\&
Hamilton Gardens Trophy, New Zealand
'Moonstone' white, full, Carruth 1998
'Reflet de St. Malo' medium pink, double, Adam 2002
'Ronald Reagan' red blend, 35 petals, Zary 2005
'Maurice Utrillo' red blend, 17-25 petals, Delbard 2004
'Tahitian Sunset' apricot blend, 25-30 petals, Zary 2007
'Cherry Parfait' red blend, 30-35 petals, Mouchotte 2001
'Grande Amore' medium red, full, Kordes 2005
'Apricot Candy' apricot blend, full, Meilland 2007
'Sedona' orange red, 20-25 petals, Zary 2008
'Sweetness' mauve, 26-40 petals, Zary 2008

# GOLD MEDALS - FLORIBUNDAS <br> \& 

Gardens of Adelaide, Australia, Challenge Trophy

## GOLD MEDAL - SHRUBS

'Day Breaker' apricot blend, 30-35 petals, Fryer 2003
'Modern Magic' orange blend, double, Christensen 2001
'Eureka' apricot blend, double, Kordes 2003
'Hot Cocoa' russet, full, Carruth 2001
'Fragrant Wave' white, 20 petals, Zary 2005
'Disneyland Rose' orange pink, 30-35 petals, Zary 2005
'Julia Child' medium yellow, full, Carruth 2005
'Frankly Scarlet' medium red, double, Zary 2007
'Topsy Turvey' red blend, 10-15 petals, Carruth 2005
'Light of Day' medium yellow, full, Saville 2006
'Lovestruck' pink blend, double, Zary 2007
'Beauty Within' medium yellow, double, Zary 2010
'White Licorice' light yellow, full, Bedard 2009
'Starry Night' white, single, Orard 2002
'Pure Perfume' white, very full, Zary 2005
'Paul Ecke, Jr.' orange blend, single, Carruth 2004
'Midnight Blue' mauve, double, Carruth 2003
'Good 'n Plenty' pink blend, single, Zary 2007
'Snowcone' white, single, Zary 2007
'Bubblicious' light pink, single, Zary 2008
'Silicon Valley Diamond' white, semi-double, Mouchotte 2011

## GOLD MEDALS - MINIATURE

'Sun Sprinkles' deep yellow, 25-30 petals, Zary 1999
'Neon Cowboy' red blend, single, Carruth 2001
'Rainbow Sunblaze' red blend, 25-30 petals, Meilland 2006
'Aristocrat' deep pink, full, White 2002
'Sugarland Run' medium yellow, semi-double, Poulsen 2005
'Spring Fling' medium red, single, Meyer 2006
'Tiddly Winks' yellow blend, double, Carruth 2006
'Magic Show' red blend, double, Benardella 2009

## GOLD MEDAL - FRAGRANCE \&

Gifu Prefecture Governor's Award, Japan

'Firefighter' dark red, 4045 petals, Orard 2004
'Rouge Royale' red blend, very full, Mouchotte 2001
'Barbra Streisand' mauve, 25-30 petals, Carruth 1999
'Maria Shriver' white, 40 petals, Dorieux 2005
'Pope John Paul II' white, full, Zary 2007
'Wild Blue Yonder' mauve, 25-30 petals, Carruth 2004
'Rachel' medium pink, 41 petals, Rosen Tantau 2004
'Sweet Intoxication' mauve, full, Zary 2008
'Singin' The Blues' mauve, 25 petals, Mouchotte 2009

'Singin' the Blues' by Jaques Mouchotte


## Pageant of Roses Garden

The late John van Barneveld serving as a director of the American Rose Society in the Pacific Southwest District, created "The Pageant of Roses Garden" in 1958. The garden grew in size, content and acclaim over the years. In 1984, the ARS Public Gardens Committee awarded its Outstanding Public Garden Achievement Award to "The Pageant of Roses Garden."

Today this 10 -acre rose garden, under the guidance of Curator Dr. Tommy Cairns, is one of the most outstanding in America with approximately 9,000 rosebushes representing a rainbow of colors and offers visitors a spectacular experience with its beauty and fragrance. "We have a threefold mission here," Cairns explained while conducting a visitor on a tour. "First, we want to promote the rose as a flower that's easy to grow. We also are providing a showcase of roses for the public. And lastly, because the rose is the emblem for Rose Hills Memorial Park, our goal is to create a top notch garden."

Accent has been placed on modern roses suitable for the home garden to allow the public to observe varieties that would thrive in the sub-tropical climate of Southern California. In 2009 the garden received the World Federation of Rose Societies "Award of Garden Excellence", one of only a handful of gardens throughout the world to receive such recognition. If visitors want to learn how to row these beautiful flowers in their own gardens, the staff at Rose Hills is eager to provide information and inspiration. Pruning demonstrations are held every January and attract hundreds of enthusiastic participants.

Starting in 2000 the garden initiated the first ever International Rose Trials in the USA - a two year trial period and formed an alliance with other trial gardens in the Pacific Rim:

Gifu, Japan;
Adelaide, Australia; and
Hamilton, New Zealand.
These gardens are signatories to the treaty known as:


## The American Rose Society

The American Rose Society is the largest special plant society in the United States. It is a nonprofit, educational organization formed in 1892. Its headquarters are in Shreveport, Louisiana in the 118-acre park known as the American Rose Center, the largest park dedicated to roses in the United States. There are over 385 affiliated rose societies and chapters at the local level throughout the United States.
The American Rose Society offers many different services to promote rose growing and rose culture. The Society:


1. Publishes the bi-monthly magazine, American Rose; the only periodical devoted exclusively to information on the culture, use and history of roses.
2. Publishes the American Rose Annual, a magazine containing up to date scientific information on roses and rose growing plus other articles of general interest to rose lovers.
3. Publishes the Handbook for Selecting Roses, a tabulation of hundreds of individual reports from ARS members across the nation which is published annually and rates virtually all commercially available roses by several criteria.
4. Maintains the Consulting Rosarian Program - a network of over 2,800 expert rose growers across the nation that can give you personal assistance.

These and many other benefits are available to American Rose Society members. If you would like to take part in this dynamic and growing organization call us at:

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## ХL'HIDOS 'TSO甘 NVDIE'HWV

## Rose Terminology

Many of the expressions used in discussing roses have specific meanings which become the jargon of the day. Some of more useful rather than esoteric terms to aid the reader in their quest for technical based rose knowledge:
Bareroot rose: A two year old bush dug from the commercial rose fields.
Basal break: A new shoot emanating from the bud union
Bud Eye: Dormant shoot that will eventually grow from a leaf axil.
Bud Union: Point on the rootstock where the bud eye is inserted.
Cane: A rose shoot or stem.
Chlorosis: Chlorophyll loss in leaves.
Cluster: Number of flowers blooming on the same stem.
Dead-heading: Removal of spent or dead blooms.
Disbudding: Removal of side buds to create a one bloom per stem.
Dormancy: Period of non-growth during the winter months.
Double: Flowers with 17-25 petals.
Full: Rose having 26-40 petals.
Hips: Seed pods that may develop if a spent bloom is not removed.
Humus: End product of composting.
Hybrid: Rose resulting from crossing two different species or varieties.
Loam: Best soil condition for growing roses (clay, sand and humus).
Own-root rose: Rose propagated from a cutting.
Photosynthesis: Plants converting water, carbon dioxide and sunlight into sugars as plant food.
$\mathbf{p H}$ : The measure of alkalinity or acidity on a 14 point scale. The ideal pH for rose gardens in 6.5 (slightly acidic).
Pith: White fibrous core of a rose cane.
Pompon: Description applied to a rounded bloom with regular short petals.
Quartered bloom: Description applied to a variety that displays the petals folded into four distinct quadrants.
Quill: Petals that fold back from each side, rolling the petal edges under in a scroll like fashion.
Recurrent: Repeat flowering.
Reflexed: Petals which curl back as the flower opens.
Rootstock: Rose species or cultivar onto which a variety is budded.
Rosette: Bloom description of a flattish, regular bloom with many short petals.
Secateurs: Pruning shears
Semi-double: Rose having 9-16 petals.
Sepal: The leaf-like leaves that protect the bud before it opens.
Spreader-Sticker: An additive for sprays that increases their effectiveness by enabling the drops to flow more evenly across the foliage and then to stay in place.
Substance: Amount of starch in the cells of a rose petal; roses with more substance will last longer in the vase.
Sucker: Stems that grow spontaneously from the roots of a budded or own-root rose, generally in an unwanted manner.

## PAGEANT $\infty$ of ROSES GARDEN

 $\rightarrow \infty=$ AT ROSE HILLS MEMORIAL PARK

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Open daily from sunrise to sunset

